

What is Claimed is:

Sub  
a1

1. An optimizer for a transmission system between a transmission terminal and a reception terminal having at least two channels, the optimizer comprising:  
a processor which determines an adjustment for equalizing a predetermined characteristic for each channel and reduces the adjustment by a predetermined amount; and  
a plurality of controllers, each controller associated with a transmitter in the transmission terminal, wherein each controller receives the reduced adjustment for an associated channel and provides the reduced adjustment to an associated transmitter.
2. The optimizer of claim 1, wherein the predetermined amount is determined in accordance with a profile of the quality of the signal.
3. The optimizer of claim 1, wherein the predetermined amount is 0.5.
4. The optimizer of claim 1, wherein the predetermined amount is obtained in accordance with a relative influence of noise and fiber non-linearities in the system.
5. The optimizer of claim 1, wherein the predetermined characteristic is optical power.
6. The optimizer of claim 1, wherein the predetermined characteristic is optical signal to noise ratio.
7. The optimizer of claim 1, further comprising a wavelength selective switch at at least one location in the transmission system, said

wavelength selective switch allowing each channel to be processed by said processor.

- 5 8. The optimizer of claim 7, wherein said at least one location is a plurality of locations in the transmission path.
9. The optimizer of claim 7, wherein said at least one location includes a location intermediate to the transmission system.
- 10 10. The optimizer of claim 1, wherein said processor receives measured signals of the predetermined characteristic and determines the adjustment in accordance with the measured signals.
11. The optimizer of claim 1, wherein said processor calculates the  
15 predetermined characteristic in accordance with physical parameters of the transmission system.
12. The optimizer of claim 1, wherein the controllers are provided at an output of an associated transmitter.
- 20 13. The optimizer of claim 1, wherein the controllers are integral with associated transmitters.
- 25 14. An optimizer for a transmission system between a transmission terminal and a reception terminal having at least two channels, the optimizer comprising:  
a processor determining an adjustment in accordance with fiber non-linearities of the system ; and  
a plurality of controllers, each controller associated with a transmitter  
30 in the transmission terminal, each controller receiving the adjustment

for an associated channel and providing the adjustment to an associated transmitter.

15      15. The optimizer of claim 14, wherein the adjustment is determined in accordance with both the fiber non-linearities of the system and noise.

16. The optimizer of claim 14, wherein the adjustment is determined in accordance with a profile of the quality of the signal.

10      17. The optimizer of claim 14, wherein the adjustment is determined in accordance with a relative influence of noise and fiber non-linearities in the system.

15      18. The optimizer of claim 14, wherein said processor receives measured signals of the predetermined characteristic and determines the adjustment in accordance with the measured signals.

20      19. The optimizer of claim 14, wherein said processor calculates the predetermined characteristic in accordance with physical parameters of the transmission system.

20. A method of optimizing performance of a transmission system between a transmission terminal and a reception terminal having at least two channels, the method comprising:

25      determining an adjustment for equalizing a predetermined characteristic for each channel;

reducing the adjustment by a predetermined amount; and

controlling an output of each transmitter in the transmission terminal in accordance with the reduced adjustment for an associated channel.

30

21. The method of claim 20, wherein said determining the predetermined amount includes analyzing a profile of the quality of the signal.

22. The method of claim 20, wherein the predetermined amount is 0.5.

23. The method of claim 20, wherein said determining includes analyzing a relative influence of noise and fiber non-linearities in the system.

24. The method of claim 20, wherein the predetermined characteristic is optical power.

25. The method of claim 20, wherein the predetermined characteristic is optical signal to noise ratio.

26. The method of claim 20, wherein said determining includes receiving measured signals of the predetermined characteristic.

27. The method of claim 26, wherein said receiving is from at least one of the reception terminal and a non-terminal point in the transmission system.

28. The method of claim 20, wherein said determining includes calculating the predetermined characteristic in accordance with physical parameters of the transmission system.

29. A method of optimizing for a transmission system between a transmission terminal and a reception terminal having at least two channels, the method comprising:

determining an adjustment in accordance with fiber non-linearities of the system; and

controlling an output of each transmitter in the transmission terminal in accordance with the adjustment for an associated channel.

30. The method of claim 29, wherein said determining is in accordance  
5 with both the fiber non-linearities of the system and noise.

31. The method of claim 29, wherein said determining is in accordance with a profile of the quality of the signal.

10 32. The method of claim 29, wherein said determining is in accordance with a relative influence of noise and fiber non-linearities in the system.

33. The method of claim 29, wherein said determining includes receiving measured signals of the predetermined characteristic.

15

34. The method of claim 33, wherein said receiving is from at least one of the reception terminal and a non-terminal point in the transmission system.

35. The method of claim 29, wherein said determining includes  
20 calculating the predetermined characteristic in accordance with physical parameters of the transmission system.